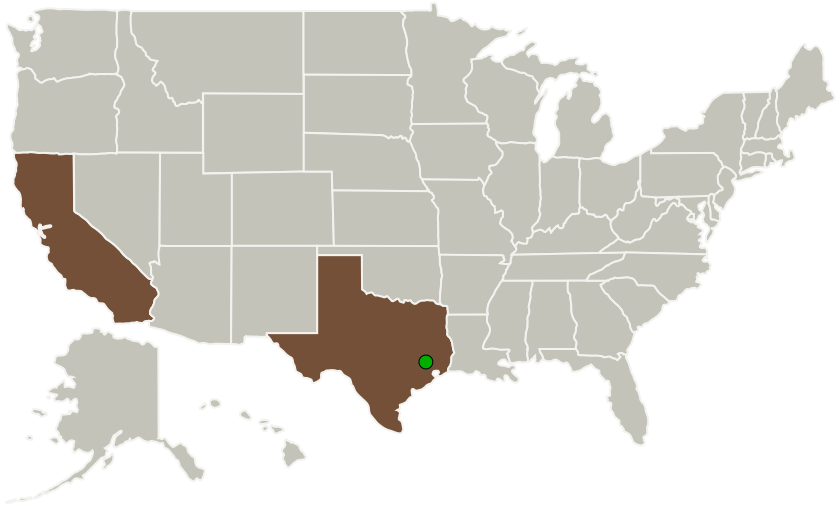
Lunar Localization System (LLS), Phase I

Completed Technology Project (2010 - 2010)

Project Introduction

In support of NASA's vision for space, the goal of this project is to research and prototype a multi-component localization system which uses radiometry and vision for global pose estimation in Selenographic coordinates. The radiometry based pose localization alone will exhaustively study the combination of satellite networks and terrestrial networks to extract the maximal information for the purpose of localization. The vision system will use terrain matching allowing for a global pose estimation capability independent of external infrastructure like satellites or beacons. The overall system will allow low level information exchange between radiometry and vision and provide fault tolerance to remove the influence of faulty sensor data. The proposal aims to create a component based end-to-end plug-and-play architecture which looks at the minutiae of a localization module to create a rugged technology upon which other systems like navigation can be built.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
UtopiaCompression Corporation	Lead Organization	Industry	Los Angeles, California
Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas

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Primary U.S. Work Locations	
California	Texas

Project Transitions

January 2010: Project Start

July 2010: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139194)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

UtopiaCompression Corporation

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

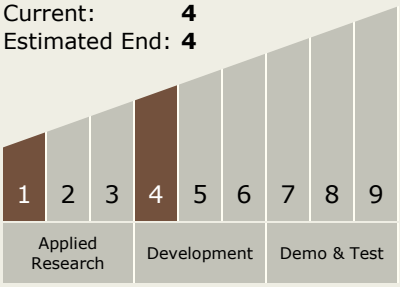
Carlos Torrez

Principal Investigator:

Niyant Krishnamurthi

Technology Maturity (TRL)

Start: **1**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX17 Guidance, Navigation, and Control (GN&C)
  - TX17.2 Navigation Technologies
    - TX17.2.5 Rendezvous, Proximity Operations, and Capture Sensor Processing and Processors

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System